Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

(For Synthetic Minor Permits only)
Federally Enforceable Synthetic Minor/Title V Draft Permit
Calvert City Power I, LLC Electric Generating Facility
Needmore Road
Calvert City, Kentucky 42029
July 3, 2001
HERBERT CAMPBELL-PERMIT ENGINEER

a. Source Description

The proposed project is to be located in Marshall County, Kentucky, on Needmore Road one mile north of the Town of Palma. Calvert City Power I, LLC of Arlington, Virginia, is proposing to construct an independent power production facility, (a peaking station), consisting of three simple-cycle gas-fired combustion turbines with support units (a fuel gas heater of 9 MMBTU/hour fuel input capacity, and a 500 hp diesel-fired emergency fire water pump). Additionally, there will be a natural gas fuel handling system with minimal fugitive emissions. The three turbines will be Mitsubishi 501F models, each with a maximum generation capacity of 185.4 MW and a nominal capacity of 178.15 MW. The combustion turbines have fuel input capacity of 1790 MMBTU/hour. The turbines will be equipped with dry low-nitrogen oxide burners for NOx emission control. The only fuel to be fired in the turbines is natural gas.

b. Facility Location and Attainment Status:

This facility is located in Marshall County, Kentucky. Marshall County is classified as attainment or cannot be classified for all criteria pollutants.

c. Comments:

1. Emission factors and their source:

Emission factors for the gas-fired combustion turbines are based on Mitsubishi vendor data, process information, part load data by ENSR using GT Pro (shown on page B-1 of the application), and in accordance with Title 40, Part 60, Appendix A, Method 19. The annual emissions are based on Mitsubishi - ENSR Case 3 which represents the turbine performance at the average annual temperature of 59º F, and an estimate of the annual fuel consumption.

Fuel gas heater emission factors are provided by ENRON (vendor).

The natural gas heater and fire-water pump emission factors are from information supplied by ENRON. The fire water pump sulfur dioxide and particulate emission factors are from AP-42, Section 3.3, Table 3.3-1.

2. Applicable regulations:
Regulation 401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines, for emissions unit with a heat input at peak load equal to or greater than 10 MMBTU/hour for which construction commenced after October 3, 1977.

3. Regulations not applicable due to characteristics of the affected facility:
Regulation 401 KAR 59:015, New indirect heat exchangers, incorporating by reference 40 CFR 60, Subpart D, Standards of Performance for Fossil-Fuel-Fired Steam Generators for which Construction is Commenced After August 17,1971.

Regulation 401 Kar 59:016, New electric utility steam generating units, incorporating by reference 40 CFR 60, Subpart Da, Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978.

Regulation 401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart Db, Standards of performance for industrial-commercial institutional steam generating units.

Regulation 401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart Dc, Standards of performance for small industrial-commercial-institutional steam generating units

Regulation 401 KAR 51:017, Prevention of significant deterioration of air quality

4. Synthetic Minor – Pollutants and emission Limitations:
The permit and source will be a synthetic minor because potential emissions of greater than 250 tons per year are possible without the emissions cap being proposed for nitrogen oxides and carbon monoxide. The permittee has agreed to an emissions cap of 245 tons per year, based on any 12 consecutive months, for both nitrogen oxides and carbon monoxide to preclude Regulation 401 KAR 51:017, Prevention of significant deterioration of air quality. The permittee will assure compliance for each pollutant with use of continuous emission monitors, a calculation procedure based on EPA methods, and monthly tracking of total emissions on a rolling basis. Also, sulfur content of natural gas fuel is being limited to the amount proposed in the application of 2.0 grain/100 SCF in order to preclude Regulation 401 KAR 51:017. This is necessary because the NSPS (40 CFR 60 Subpart GG) limitation of 0.8 weight percent sulfur in fuel would result in potential emissions greater than PSD thresholds. Hazardous air pollutant (HAP) emissions are estimated to be less than 10 tons/year of any single one, and less than 25 tons/year of any of any combination of HAPs given the limitations necessary to maintain the emissions caps for nitrogen oxides and carbon monoxide. Therefore, case-by-case MACT is precluded. The permitee will assure compliance by calculating HAP emissions and tracking and totaling emissions assuring PSD thresholds are not exceeded.

5. Synthetic Minor – Control Device Requirements:
The permittee will operate dry low-nitrogen oxide burners on each gas-fired combustion turbine to attain a 32 ppmvd at 15% oxygen NOx emission level.

6. Conclusion:

This permit (as drafted) effectively limits potential nitrogen oxides and carbon monoxide emissions from Calvert City Power I LLC to 245 tons per year for each pollutant from the combustion turbines and natural gas heater, thus precluding an NSR/PSD review. Also the sulfur content of natural gas fuel is limited below the 40 CFR 60 Subpart GG level to assure that NSR/PSD is precluded. Emissions from insignificant activities are calculated to be 0.61 tons/year nitrogen oxides and 0.27 tons/year carbon monoxide for emergency units. Hazardous air pollutants' emissions should inherently be less than PSD levels given the limitations and operations necessary to achieve the permitted nitrogen oxides and carbon monoxide emission levels. Thus, case-by case MACT determination is not be necessary.